

## DEFINITIONS

### PRE-READING

**Task 1: Brainstorming . What is a student ? Try to define the word. Work in pairs.**

### READING

**Task 2: Read the text and underline the definitions for as many types of energy as you can.**

#### The Many Forms of Energy

*Energy is the ability to do work. When a hammer strikes a nail, it exerts a force on the nail that causes it to move. The movement of the hammer has the ability to do work and therefore has a form of energy that we call kinetic energy. Kinetic energy is the energy of motion.*

*An object may have energy not only because of its motion but also because of its position or shape. For example, when a watch spring is wound, it is storing energy. When this energy is released, it will do work of moving the hands of the watch. This form of energy is called potential energy. Potential energy is stored energy. Water in a dam is another example of potential energy.*

*There are many types of kinetic and potential energy, including chemical, thermal, mechanical, electrical, and nuclear energy. Chemical energy is potential energy that is stored in gasoline, food, and, oil. Just as the watch spring needs to be released to do work of moving the hands, the energy stored in food molecules needs to be released by enzymes or substances in the body, and the energy stored in gasoline must be released by the spark plug to do its work of propelling the car forward. Thermal energy may be defined as the kinetic energy of molecules. When a substance is heated, the molecules move faster, which causes that substance to feel hot. Mechanical energy is energy related to the movement of objects. Electric energy is energy that is produced by electric charges. Nuclear energy is the energy that is stored in the nucleus of certain kinds of atoms, like uranium.*

**Task 3: Analyze the underlined definitions and complete the chart.**  
**Definition formula**

TERM = GENERAL CLASS + CHARACTERISTICS WORD	GRAMMAR
	relative clause (who, which , that, where)
	reduced relative clause (no relat. pronou
	infinitive phrase
	prepositional phrase
	may (more than one way of defining)

TERM = CHARACTERISTICS + GENERAL CLASS WORD	GRAMMAR

**Task 4: In the following definitions, underline the general class once, and the specific characteristics twice.**

1. A machine is a device that transforms energy from one form to another.
2. An insulator is a substance that does not conduct energy.
3. Ecology is the study of the environment.
4. A satellite is a celestial body that orbits another celestial body.
5. Fission is the process of breaking or splitting into parts.

**Task 5: Join the following pairs of sentences to form a relative clause. Use who, which, that, where.**

1. Evaporation is the process.
2. A dew point is the temperature.
3. Marine biologists are scientists.
4. A laboratory is a place.
5. Oxygen is a colourless, tasteless, odourless, gaseous element..
6. A generator is a machine.
7. A bond is the chemical link.

1. It is essential to life and required for combustion.
2. It converts kinetic energy to electricity.
3. It holds atoms together in molecules and giant structures.
4. Dew condenses from air.
5. A liquid changes into a gas.
6. They study animals and plants living in the sea.
7. Experiments are performed there.

**Task 6: Say what is wrong with the following definitions and correct them.**

1. An apple is round, red, and about the size of a fist.
2. Radium is an element.
3. A unicorn is not a real animal.
4. A camera is very expensive.
5. Acoustics is a science.
6. An ear is an auditory appendage of Homo sapiens and other species.
7. Arithmetic is a tough subject.
8. A compass looks like a clock.

*Elaborated by Nibreda Parlarova*

## Math and Mathematicians

### 1. Define these terms:

- |               |                 |              |
|---------------|-----------------|--------------|
| 1. arithmetic | 5. mathematics  | 9. algebra   |
| 2. cone       | 6. equation     | 10. geometry |
| 3. number     | 7. quantity     |              |
| 4. space      | 8. trigonometry |              |

### 2. Match these definitions with the terms above.

- A. a branch of mathematics dealing with the relationship between sides and angles of triangles, etc.
- B. (unused or unfilled gap), area between two or more objects or points.
- C. that which makes it possible to measure things through having number, size, weight, etc.
- D. a symbol or word indicating a quantity of units.
- E. a branch of mathematics dealing with the properties and relations of lines, angles, surfaces and solids.
- F. a statement that two expressions (connected by the sign =) are equal.
- G. a solid body that narrows to a point from a circular flat base.
- H. a branch of mathematics in which letters and symbols are used to represent quantities.
- I. a science of numbers, quantity and space.
- J. a branch of mathematics that deals with numbers and the operations of addition, subtraction, multiplication and division. calculation or calculations using numbers.

### 3. Try to define the following terms.

- a) A vector .....
- b) The sine ratio .....
- c) A prime number .....
- d) The diameter of a circle .....
- e) A rational number .....
- f) Axioms .....

## Definitions of Mathematics

The study of the measurement, properties, and relationships of quantities, using numbers and symbols.

*The American Heritage Dictionary*

☑ The science of numbers and their operations, interrelations, combinations, generalizations, and abstractions and of space configurations and their structure, measurement, transformations, and generalizations.

*Webster's New Collegiate Dictionary*

┌ Mathematics is a language.

*Gibbs, Josiah Willard. 1839-1903.  
American mathematician and physicist.*

☑ ┌ Mathematics may be defined as the subject in which we never know what we are talking about, nor whether what we are saying is true.

*Bertrand Russell. 1872-1970  
British philosopher, mathematician.  
Mysticism and Logic*

┌ All science requires Mathematics. The knowledge of mathematical things is almost innate in us... This is the easiest of sciences, a fact which is obvious in that no one's brain rejects it; for laymen and people who are utterly illiterate know how to count and reckon.

*Roger Bacon. 1214-1294  
English philosopher, scientist.  
Opus Maius*

┌ The study of numbers, shapes, and other entities by logical means.

*Dictionary of Mathematics*

# 8 GRAMMAR

## Participle and relative clauses

### 1 ★ -ing and -ed participles

Circle the correct participle.

- The police are examining the evidence *collecting* (*collected*) during the investigation.
- Some kids discovered the stolen money *hiding*/*hidden* in a garden shed.
- The police on this motorway are very busy *fining*/*fined* people for speeding.
- I've often met people *collecting*/*collected* shells on the beach.
- The escaped prisoner *hiding*/*hidden* in a forest near Nottingham was seen yesterday in a village shop.
- Drivers *fining*/*fined* for speeding risk losing their licences.

### 2 ★ Types of relative clauses

Underline the relative clauses and circle the words they refer to.

- The winner who has been unanimously selected by the judges, is Marion Wong.
- We need to see a film that will cheer you up a bit.
- This completely unknown Van Gogh painting which has been hidden in an attic for years will be auctioned in London next week.
- This is the man whose books have been so popular recently.
- We had lunch at The Three Bells where they serve traditional English food.
- The eggs we had for breakfast weren't very fresh.

### 3 ★★ Relative pronouns

Add relative pronouns and commas where necessary.

- Heathrow *, which* is one of the biggest airports in the world, handles hundreds of flights every day.
- Some people would do anything ..... could increase their promotion prospects.
- The Prime Minister ..... has just arrived will make a speech tonight.
- The show was put on by four young designers ..... have won major prizes this year, and ..... work has become very fashionable.
- The style ..... fashion designers are trying to promote this year can only appeal to very young people.
- Jack Nicholson ..... talent is versatile and unanimously appreciated has received three Oscars so far.
- The lecture was called off five minutes before it was due to start ..... annoyed the audience enormously.
- We landed in San Diego ..... the plane was supposed to refuel.

### 4 ★★ Relative clauses

Rewrite the sentences changing the information in brackets into relative clauses. Add commas where necessary.

- My oldest brother is a paediatrician. (He has four children of his own.)  
*My oldest brother, who has four children of his own, is a paediatrician.*
- The TV breaks down all the time. (This makes us listen to the radio more.)  
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- The fire brigade haven't managed to put out the fire. (It broke out at 5 a.m.)  
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- The report describes human rights violations in Asia. (Amnesty International published it this month.)  
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- Charles Perry will host a chat show on TV5. (His lifestyle is constantly being discussed in the popular press.)  
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- Some African animal species have to be helped by international organisations. (They are threatened with extinction.)  
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